

REMARKS

Reconsideration of the subject application is respectfully requested in light of the following comments.

Claims 1-15 and 19-21 were pending in this application with claims 19 and 20 withdrawn from consideration based on a restriction requirement. In this response, no claim is amended, canceled, or added. Thus, claims 1-15 and 19-21 remain pending.

Rejections Under 37 C.F.R. § 103

Claims 1-6, 8-13, 15 and 21 are rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 6,548,121 to Bauer et al. (hereafter “*Bauer*”) in view of U.S. Patent Publication No. 2004/0011288 to Affinito (hereafter “*Affinito*”) and U.S. Patent No. 4,233,130 to Borden et al. (hereafter “*Borden*”) as set forth at pages 3-8 of the Official Action.

The Office alleges that *Bauer* discloses all of the method steps except “irradiating the layer of step b) with from 1 to 1000 mJ/cm² of UV/Vis light having wavelengths from 150 to 700 nm to fix the one or more photoinitiators in the layer of step b)” as recited in claim 1. The Office also alleges that this missing step is equivalent to repeating the steps of ‘121 to deposit a first polymeric layer prior to depositing a metallic layer. Further, *Affinito* allegedly discloses depositing monomer coatings (i.e. acrylates) on substrates, then polymerizing them by UV radiation, and then depositing a metallic layer. From this, the Office alleges that it would have been obvious to perform the process of *Bauer* to first deposit the particular monomer layer containing photoinitiators disclosed in *Bauer*, then to irradiate that layer, and then to deposit a metallic layer. Further, the Office alleges that this modification of *Bauer* renders the process of claim 1 obvious.

Applicants respectfully traverse. *Bauer* fails to disclose step c) in claim 1. Step c) in claim 1 recites “irradiating the layer of step b) with from 1 to 1000 mJ/cm² of UV/Vis light having wavelengths from 150 to 700 nm to fix the one or more photoinitiators in the layer of step b).” *Affinito*, which the Office alleges cures the deficiency of *Bauer* with regard to irradiating the layer of step b) to fix the one or more photoinitiators in the layer of step b), fails to disclose step b) or step c) in claim 1. Specifically, *Affinito* fails to disclose any precoating step, much less one similar to step b) in claim 1.

In order to support its modification of *Bauer* based on the teachings of *Affinito*, the Office has incorrectly interpreted the process of claim 1. The Office has incorrectly interpreted the process of claim 1 as merely applying a first polymeric coating and then depositing a metal coating on to the first polymeric coating. Thus, the Office interprets the process of claim 1 as a process to coat two separate coatings onto the same substrate. In contrast, claim 1 relates to a process to improve the adhesion of a metal coating to the underlying glass, ceramic, or polymeric substrate. In other words, the process of claim 1 is a method to coat a single coating of metal on an incompatible substrate by using the steps of treating the substrate and applying a precoating layer containing photoinitiators.

This same interpretive distinction is found between *Bauer* and *Affinito*. *Bauer* discloses a process to form strong adhesion of the outer coating to the underlying substrate by treating the substrate and applying a precoating layer containing photoinitiators. In contrast, *Affinito* discloses a process to directly adhere a coating to the underlying substrate without first applying a precoating layer, and then optionally a metal coating layer can be deposited on the first layer. The considerations and optimization of the process is different where the first coating is being applied as a distinct layer in of itself (i.e., *Affinito*), as opposed to a process where the first

coating is a precoating layer merely used to enhance the adhesion of the second coating to the substrate (i.e., *Bauer*). In *Affinito*, the adhesion and fixation of the first layer is critical, at least because that layer is applied for a functional purpose in the final product other than merely bonding the optional second layer to the substrate. In *Bauer*, the adhesion and fixation of the first layer is merely important with regard to how the second layer is adhered and fixed in relation to the substrate, at least because the only functional purpose of the first layer is to enhance bonding between the second layer and the substrate.

Similarly, because the goal of *Affinito* was to form a final coating layer directly bonded to the substrate that could have additional layers coated over top, the first coating layer should be fixed prior to any additional layers. In contrast, *Bauer* discloses precoating the substrate with a layer containing photoinitiators. The precoating is used to strongly adhere a metallic coating layer to the substrate by irradiating the metal coating layer and the underlying photoinitiator containing layer during deposition of the metallic coating layer. Thus, the process of *Bauer* appears to rely upon the photoinitiators of the precoating layer interacting at least partially with the metallic coating layer and substrate during the irradiation step. This interaction leads to strongly adhering the metallic coating layer to the substrate.

In contrast to *Bauer*, Applicants have discovered that the adhesion of the additional coating layer to the substrate is further improved by irradiating the precoating layer so as to fix the one or more photoinitiators in the precoating layer prior to depositing the metal, half-metal, or metal oxide coating layer. Such fixation of the photoinitiators in the precoating layer prior to coating with the metal, half-metal, or metal oxide coating layer weakens the interaction that appeared important to the improved adhesion in *Bauer*. Therefore, there would have been no

expectation of success in the combination of *Bauer* and *Affinito* or the proposed modification of *Bauer* to include the intermediate irradiation step recited in claim 1.

Furthermore, even if, *arguendo*, it were obvious to combine *Bauer* and *Affinito*, the combination would not lead one of ordinary skill in the art to modify the process of *Bauer* to the process of claim 1. Specifically, modifying *Bauer* in accordance with the disclosure in *Affinito* to coat a metal layer on the first layer would lead to a process in which an intermediate irradiation step (i.e., step c) in claim 1 between the steps of b) and c1) in *Bauer*, would still not be present. At most, the combination of *Bauer* and *Affinito* may have led one of ordinary skill in the art to perform the process steps of a), b), and c1) of *Bauer* followed by depositing a metal layer on the coating of c1). However, nothing in the combination would lead one of ordinary skill in the art to irradiate the precoating of step b) in *Bauer* to fix the photoinitiators prior to any further coating steps.

Bauer discloses a process of coating a layer on a substrate by treating the substrate, precoating with the photoinitiator containing layer, coating either a metal, half-metal, or metal oxide coating layer over the precoating while irradiating the coating to fix it to the substrate. In the final coating step, the photoinitiator containing layer of step b) of *Bauer* is only present as a precoating layer that is not subjected to irradiation until the final coating step. Therefore, the combination of *Bauer* and *Affinito* would merely lead to either a process that does not include step b) of coating a photoinitiator containing layer, or a process where an additional layer is coated onto the coating of step b) prior to any irradiation step. Therefore, no combination of *Bauer* and *Affinito* would have resulted in a process including the intermediate irradiation step c) recited in claim 1.

Therefore, for at least the above reasons, it would not have been obvious to modify *Bauer* to include an irradiation step between the precoating step b) and the coating steps d1) or d2), with or without the teachings in *Affinito*. Further, *Borden* appears to be relied upon by the Office solely for its alleged teaching that radiation dosage used to cure coatings is a result effective variable. *Borden* fails to remedy at least the deficiencies described above with regards to *Bauer* and *Affinito*. Therefore, no *prima facie* case of obviousness has been established.

Dependent claims 2-15 and 19-21, which depend from claim 1, are also not obvious for at least the reasons for claim 1. Accordingly, Applicants respectfully request withdrawal of the rejections.

Claims 7 and 14 are rejected under 35 U.S.C. § 103(a) as allegedly being obvious over *Bauer* in view of *Affinito* and *Borden*, as applied to claim 1 above, and further in view of U.S. Patent No. 6,251,963 to Kohler et al. (hereafter “*Kohler*”) as set forth at pages 8-9 of the Official Action.

Applicants respectfully traverse. Claims 7 and 14 each depend on claim 1. As discussed above, the combination of *Bauer*, *Affinito*, and *Borden* at least fail to disclose or render obvious all of the elements recited in claim 1. Further, *Kohler* appears to be relied upon by the Office solely for elements recited in claims 7 or 14, respectively. *Kohler* fails to remedy at least the deficiencies of *Bauer*, *Affinito*, and *Borden* with regard to claim 1. Therefore, for at least this reason no combination of *Bauer*, *Affinito*, *Borden*, and *Kohler* render obvious all of the elements recited in claims 7 or 14. Accordingly, Applicants respectfully request withdrawal of the rejections.

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited. Applicants' representative is signing in his capacity under 37 C.F.R. §1.34 on behalf of Applicants. Should a fee be necessary to maintain pendency of the application, including the fee for a Notice of Appeal, the Office is authorized to charge Deposit Account 50-0573, and this paper will serve as a Notice of Appeal.

Respectfully submitted,

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